

CLAIMS

1. A method for producing a birefringent film, comprising the step of stretching a polymer film,

5 wherein, in the step of stretching the polymer film, the polymer film is stretched in a width direction while being shrunk in a longitudinal direction, and

 assuming that lengths in the width direction and the longitudinal direction of the polymer film before being stretched are 1, a change ratio (STD) of the length in the width direction of the polymer film resulting from the stretching and a change ratio (SMD) of the length in the longitudinal direction of the polymer film resulting from the shrinking satisfy a relationship represented by the following formula (1).

$$(1/STD)^{1/2} \leq SMD < 1 \quad \dots (1)$$

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2. The method according to claim 1, wherein the STD and the SMD satisfy a relationship represented by the following formula.

$$(1/STD)^{1/2} = SMD$$

20 3. The method according to claim 1 or 2, wherein the SMD is less than 0.99.

4. The method according to any one of claims 1 to 3, wherein the $(1/STD)^{1/2}$ is less than 0.99.

25 5. The method according to claim 1, wherein when the STD is 1.2, the SMD is in a range from 0.9 to 0.92.

6. The method according to claim 1, wherein when the STD is 1.3, the SMD is in a range from 0.86 to 0.90.

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7. The method according to any one of claims 1 to 6, wherein, after the polymer film is formed on a base directly, the polymer film is subjected to the stretching treatment and the shrinking treatment at the same time.
- 5 8. The method according to any one of claims 1 to 6, wherein the base is subjected to the stretching treatment and the shrinking treatment at the same time, thereby stretching and shrinking the polymer film on the base.
9. A birefringent film produced by the method according to any one of claims
10 1 to 8.
10. An optical film comprising the birefringent film according to claim 9.
11. The optical film according to claim 10, further comprising a polarizer.
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12. The optical film according to claim 11, further comprising a transparent protective film, the transparent protective film being disposed on at least one surface of the polarizer.
- 20 13. A liquid crystal panel comprising the optical film of according to any one of claims 10 to 12, the optical film being disposed on at least one surface of a liquid crystal cell.
14. A liquid crystal display comprising the liquid crystal panel according to
25 claim 13.
15. An image display comprising the optical film according to any one of claims 10 to 12.